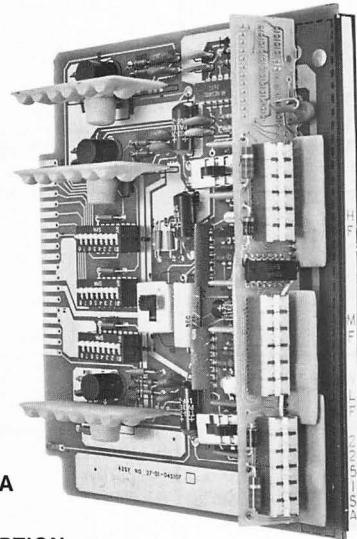


2251



2251SA

DESCRIPTION

The Model 2251 and 2251SA Crossover Driver Card Modules are plug-in components of the ALTEC Incremental Power System. The driver modules feed inputs to the power amplifier modules to achieve the desired combinations of output signals and output power. One or two driver modules may be inserted in the main frame of the Incremental Power System to process the inputs.

The Models 2251 and 2251SA provide two-way or three-way electronic crossover. Each module includes three driver amplifier circuits and an 8-channel output switching matrix. Selectable crossover frequencies are 625 Hz, 800 Hz, 1250 Hz, and 1600 Hz for the low to mid frequency range; 3150 Hz, 4000 Hz, 5000 Hz, and 8000 Hz for the mid to high frequency range. Slope rate is fixed at 12 dB per octave. Attenuators of the Model 2251 are continuously adjustable to a maximum attenuation of -60 dB. Attenuators of the Model 2251SA are adjustable in discrete increments of 1 dB, to a maximum attenuation of -63 dB.

INSTALLATION, SETUP, OPERATION

Refer to Operating Instructions for the Incremental Power System (42-02-045121).

**ALTEC
LANSING**

**MODEL 2251 and 2251SA
CROSSOVER DRIVER MODULES**

**TECHNICAL
INSTRUCTIONS**

SPECIFICATIONS, MODEL 2251, 2251SA

Type	2-way or 3-way electronic crossover card with 3 driver amplifiers and an output switch matrix.
Crossover Frequencies	625 Hz, 800 Hz, 1250 Hz, 1600 Hz (Low/Mid); 3150 Hz, 4000 Hz, 5000 Hz, 8000 Hz (Mid/High).
Slope Rate	12 dB/octave
Frequency Response	Each filter is -3 dB at the selected crossover frequency. The LOW output is less than -0.5 dB at 20 Hz; the HIGH output is less than -0.5 dB at 20 kHz. All filters are essentially flat within their respective passbands.
Phase Response	All filters conform to standard "butterworth" phase response within $\pm 20^\circ$.
Total Harmonic Distortion	Less than 0.1% from 20 Hz to 20 kHz from any driver amp output, all attenuators at full CW rotation.
Hum and Noise	95 dB Signal to Noise ratio at driver amp outputs with equal channel gains.
Maximum Voltage Amplification from 2220 Input to Special Input/Output Jacks J213, J214 or J215	+ 15.0 dB (+ 11.5 dB in bi-amp) to J213 ("HIGH" output); + 11.5 dB to J214 ("MID" output); - 0.5 dB to J215 ("LOW" output). Note: LOW, MID and HIGH attenuators do not affect the output level at the Special Input/Output Jacks J213, J214 and J215.
Minimum Load Impedance on Special Input/Output Jacks J213, J214, J215	3000 Ohms (actual output impedance is 270 Ω)
Switches	3 DIP (dual inline package) output bus matrix switches—8-SPST switches per DIP; 1 "BI/TRI" switch, 2 Crossover Frequency Switches.
Driver Amplifiers	X 57.3 (35.2 \pm .2 dB voltage amplification) amplifiers designed specifically to drive the Model 2275 Power Amplifiers.
Attenuators 2251:	3 driver amplifiers, one each for the HIGH, MID and LOW outputs. Driver amplifiers drive the Model 2275 Power Amplifiers but do not drive the Special Input/Output Jacks J213, J214 and J215. Mid Output may be used as a full-range channel in bi-amplifier mode with an input attenuator accessible through J214.
2251SA:	LOW, HIGH and MID driver amplifiers have 50K ohm audio taper input attenuators with at least 60 dB attenuation at maximum CCW rotation.
	LOW, MID and HIGH driver amplifiers each have a six-position DIP switch attenuator with sumable steps of 1-2-4-8-16-32 dB (maximum 63 dB attenuation).

Specifications and components subject to change without notice. Overall performance will be maintained or improved.

**ALTEC
LANSING**
SOUND PRODUCTS DIVISION

1515 S. Manchester Ave., Anaheim, Calif. 92803

42-02-045286-02 1078-1M

LITHO IN USA

PARTS LIST

MAIN PCB ASSEMBLY

Reference Designator	Ordering Number	Name and Description
— *	27-01-045256-01	Circuit Board Assy., 3 Channel Step Attn.
C1,101 201,301	15-01-100156-01	Cap., 1 mF, 25V
C2	15-06-121538-01	Cap., 0.033 mF \pm 2%, 100V
C3	15-06-109398-01	Cap., 0.0033 mF \pm 2%, 200V
C4	15-06-121539-01	Cap., 0.15 mF \pm 2%, 100V
C5	15-06-119542-02	Cap., 0.015 mF \pm 2%, 100V
C6,7	15-02-100307-01	Cap., 0.01 mF \pm 20%, 100V
C8,9	15-02-107469-01	Cap., 0.0015 mF \pm 20%, 100V
C10,11	15-01-100205-01	Cap., 10 mF, 25V
C12	15-02-100024-02	Cap., 100 pF \pm 10%, 500V
C102,202, 302	15-01-100233-01	Cap., 15 mF, 15V
C103,203, 303	15-02-100032-01	Cap., 270 pF \pm 10%, 500V
C104,204, 304	15-02-100007-01	Cap., 3.3 pF \pm 10%
C105,205, 305	15-02-100010-01	Cap., 10 pF, 500V
CR1,2	48-01-100876-01	Diode, 1N270
R1,5	47-10-121622-01	Net., 1.00K/2.00K/5.11K/68.00K
R2,6	47-10-121621-01	Net., 4 x 5.11K
R3,4	47-10-121620-01	Net., 402/1.18K/1.40K/2.43K

Reference Designator	Ordering Number	Name and Description
R7,8	47-10-121619-01	Net., 1.69K/2.80K/3.24K/3.92K
R9	47-01-102102-01	Res., 10 k Ω \pm 5%, 1/4W
R10,13,18	47-06-121822-01	Pot., 50 k Ω , audio taper
R11	47-03-109437-01	Res., 10 k Ω \pm 1%, 1/4W
R12,16,17	47-01-102156-01	Res., 270 Ω \pm 10%, 1/4W
R14,15	47-01-102024-01	Res., 5.6 Ω \pm 5%, 1/4W
R19	47-01-102095-01	Res., 5.1 Ω \pm 5%, 1/4W
R101,201, 301	47-01-102185-01	Res., 68 k Ω \pm 10%, 1/4W
R102,202, 302	47-03-108433-01	Res., 1.21 k Ω \pm 1%, 1/4W
R103,203, 303	47-03-109159-01	Res., 68.1 k Ω \pm 1%, 1/4W
S1,2	51-01-121953-01	Switch, 2P4T, slide
S3	51-02-121951-01	Switch, 3PDT, slide
S101,201, 301	51-02-121529-01	Switch, SPST, 8-sect. mini rocker
U1,2	17-01-121305-01	Int. Ckt., quad op amp
U3	17-01-121282-02	Int. Ckt., dual track reg
U100,200, 300	17-01-121528-01	Int. Ckt., op amp, high voltage

* Model 2251SA only

** Model 2251 only

THREE-CHANNEL ATTENUATOR ASSEMBLY*

Reference Designator	Ordering Number	Name and Description
C501,502, 503	15-02-100024-02	Cap., 100 pF \pm 10%, 500V
CR600,601	48-01-108576-02	Diode, zener, 15V \pm 5%, 2W
R501,502, 503	47-10-121945-01	Network, 63 dB attenuation

Reference Designator	Ordering Number	Name and Description
R600,601	47-01-102345-01	Res., 180 Ω \pm 10%, 1/2W
U600	17-01-121305-01	Int. Ckt., op amp
S501,502, 503	15-02-121946-01	Switch, 6X SPDT

* Model 2251SA only

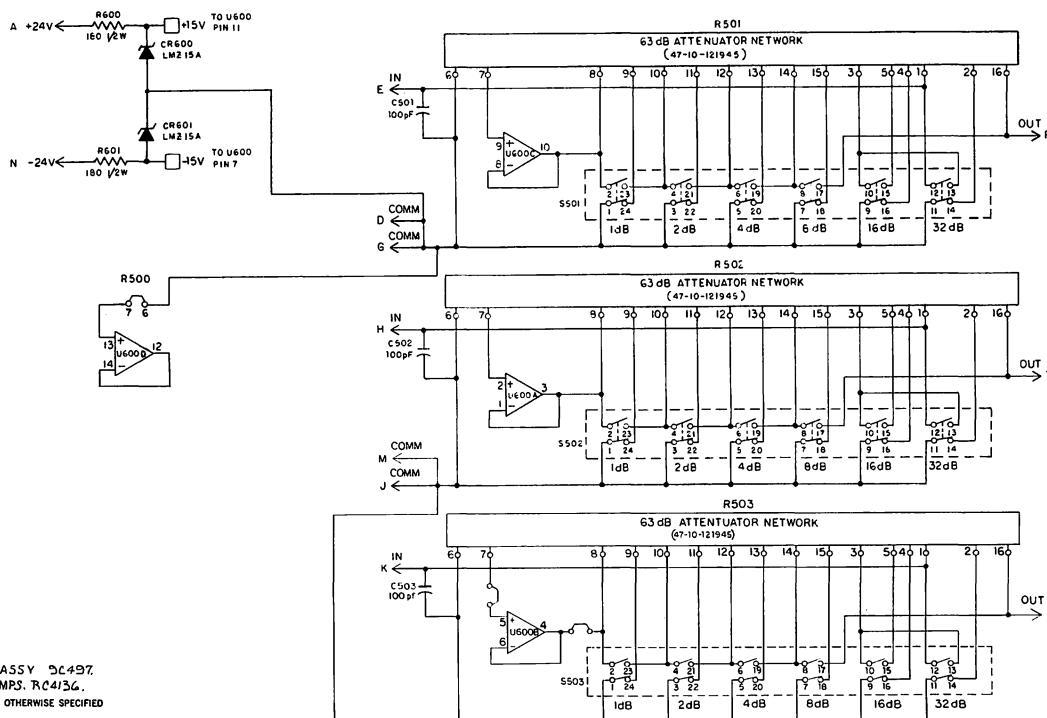
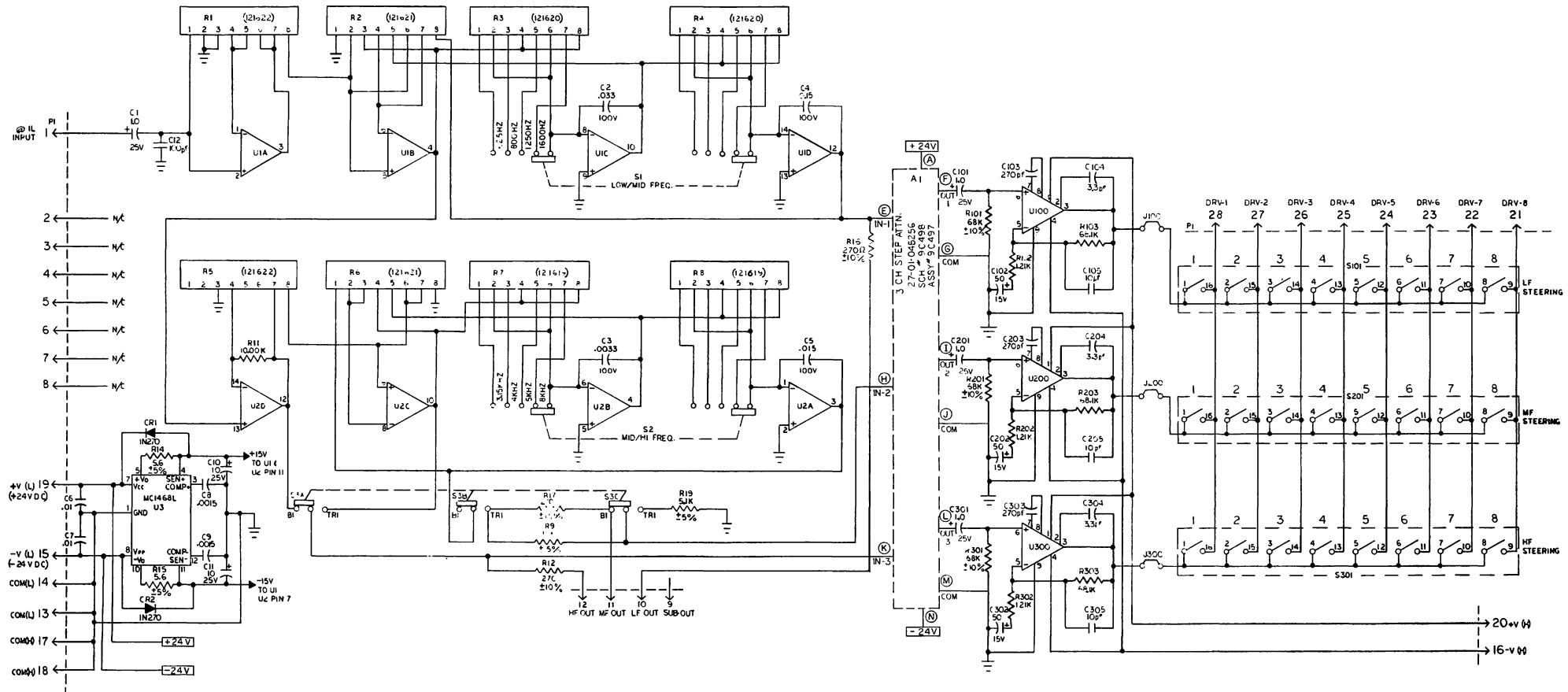


Figure 1. Schematic (9D498-01), 3-Channel Step Attenuator

REVISIONS						APPROVED
ISSUE	ZONE	ECO	DESCRIPTION	BY	DATE	ENG REL
W01			REL FOR PROTO			5-17-78
			REL FOR PRODUCTION			5-17-78



6. FOR ASSEMBLY DRAWING SEE 9C485
5. FOR WIRING DIAGRAM SEE 9D144
4. FOR INTERCONNECTION DIAGRAM SEE 9D145
3. FOR SEPARATE BILL OF MATERIALS SEE 10-02-01-812; 27-01-045253
2. ALL CAPACITOR VALUES ARE IN MICROFARADS.
1. ALL RESISTOR VALUES ARE IN OHMS 1/4W $\pm 1\%$.

NOTES: UNLESS OTHERWISE SPECIFIED

Figure 2. Schematic (9D486-01), Model 2251SA Crossover Driver Module

REVISED			
ISSUE	ZONE	ECO	APPROVED
01	REL.	FOR PRODUCTION	BY DATE
02	3C	1983 ADDED C207 100 PF	H.L. 4-17-83

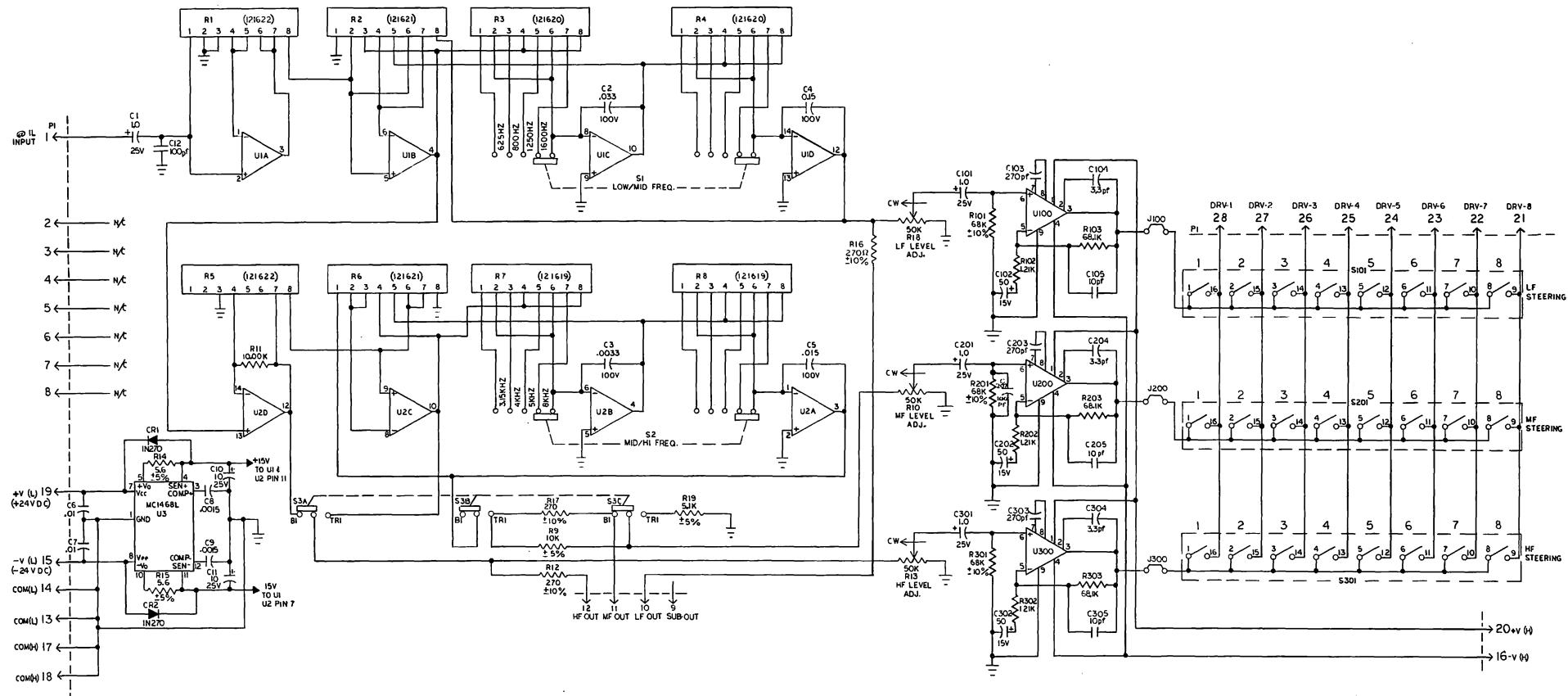


Figure 3. Schematic (9D129-02), Model 2251 Crossover Driver Module